

$$\text{R}-\left[\text{XO}\right]_n\text{H} + \text{H}_2\text{C}-\underset{\text{O}}{\text{CH}}-\text{CH}_2\text{Cl}$$
 Polyoxyalkylene polyether + Epichlorohydrin

$$\xrightarrow{\text{(acidic catalyst)}}$$

$$\text{R}-\left[\text{XO}\right]_n\text{CH}_2-\underset{\text{OH}}{\text{CH}}-\text{CH}_2\text{Cl}$$
 Chlorohydrin

$$\xrightarrow{\text{H}_2\text{N}-\text{R}-\text{NH}_2}$$
 Poyamine

$$\xrightarrow{\text{Na-OH (alkali catalyst)}}$$

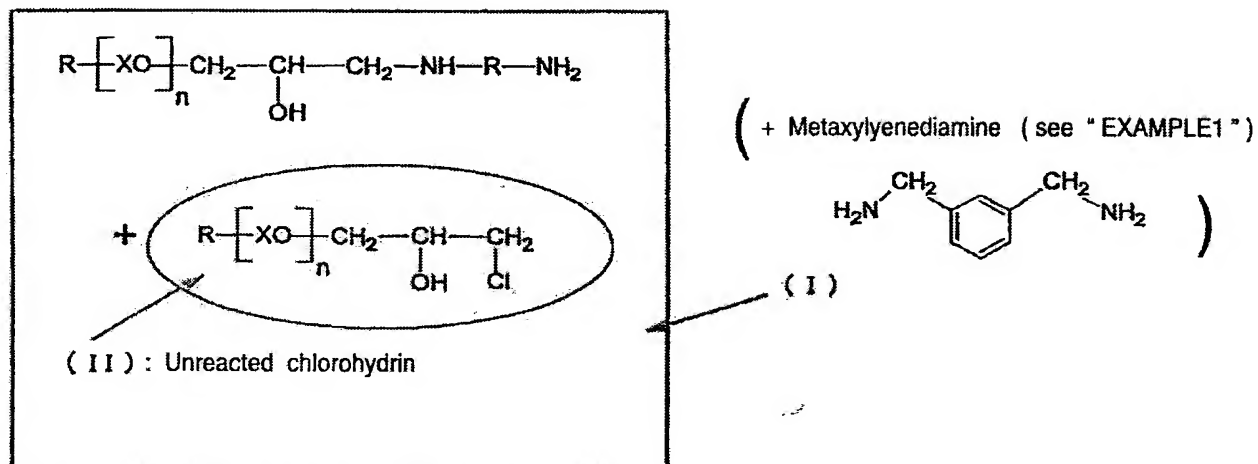
$$\text{R}-\left[\text{XO}\right]_n\text{CH}_2-\underset{\text{OH}}{\text{CH}}-\text{CH}_2\text{NH}-\text{R}-\text{NH}_2 + \text{Na-Cl} + \text{H}_2\text{O}$$

$$+ \text{R}-\left[\text{XO}\right]_n\text{CH}_2-\underset{\text{OH}}{\text{CH}}-\text{CH}_2\text{Cl}$$
 (I I) : Unreacted chlorohydrin

(I)

Modified polyamine (Mixture containing chlorohydrin)

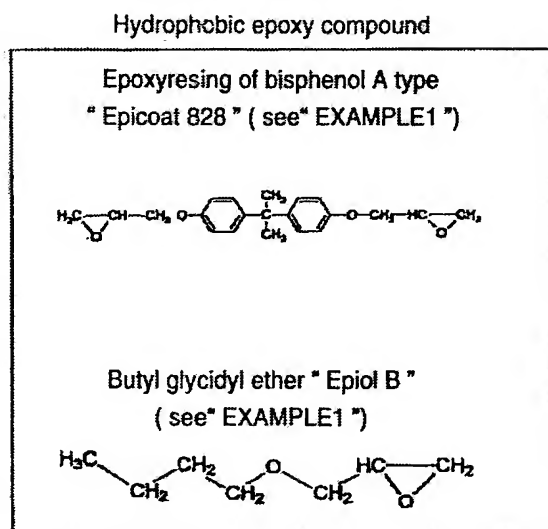
Figure 2



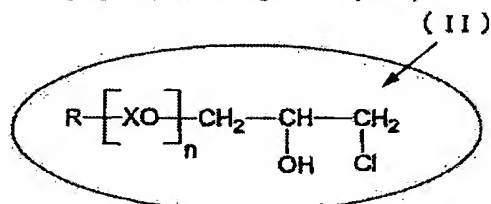
Modified polyamine (Mixture containing chlorohydrin)

Reaction between the modified polyamine and hydrphobicepoxy compound

+



Aqueous epoxy resin curing agent (containing chlorohydrin)



$$\begin{array}{c} \text{R}-\text{N}-\text{R} \\ | \\ \text{Ar} \end{array} + \begin{array}{c} \text{HO}-\text{CH}_2-\text{CH}_2-\text{O}-\text{C}_6\text{H}_4-\text{C}(\text{CH}_3)_2-\text{C}_6\text{H}_4-\text{O}-\text{CH}_2-\text{CH}_2-\text{HO} \\ | \qquad | \\ \text{O} \qquad \text{O} \end{array} + \begin{array}{c} \text{CH}_3-\text{OH} \\ | \\ \text{CH}_2-\text{Cl} \end{array}$$
